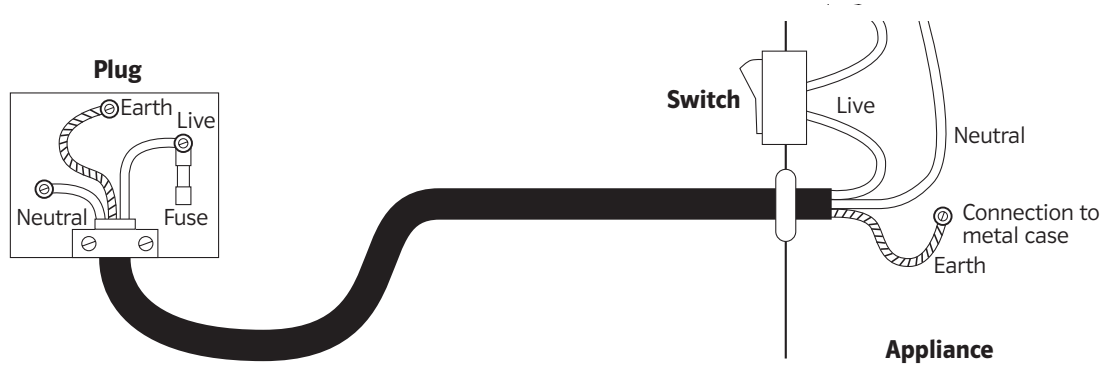




Safe as houses

We use electricity for many different things in our homes, so it has to be safe. Here are three common safety measures.



Fuses

A fuse is a thin piece of wire. If a too large current tries to pass through it, it will melt, and electricity can no longer pass through it.

Remember: the fuse is a safety device. If it breaks, there is a fault!

The consumer unit or 'fuse box'

Electricity enters your home through a very thick cable that can carry currents of 100A or more. The electricity is routed through a main fuse that protects the whole house from excessive currents which could cause the wiring to overheat and catch fire. It then passes through the electricity meter to the consumer unit or 'fuse box'.

The consumer unit connects the incoming live wire to the different power and lighting circuits in your home. Each one of these circuits is protected by a fuse and, in more modern units, a residual current device (RCD). RCDs detect if there is a difference in the current flowing into a circuit through the live wire and back out through the neutral wire. In a circuit that is working properly, there should be no difference. If there is a difference, it means that some electricity is leaking to earth through a fault and the RCD switches the circuit off immediately.

RCDs can switch a circuit off more quickly than a fuse can melt, so they are very effective safety devices.

The earth wire

Many of the electrical appliances we use have metal cases. If the live wire carrying electricity into the appliance frayed and touched the metal case, the case would become live. You might not know this until you touched it and got a shock as the current passed through you to get to earth. Connecting an earth wire to the case of the appliance can help to prevent this as it provides a low-resistance path to earth. If the case becomes live, a large current flows from the live wire to earth, blowing the fuse in the mains plug.

Appliances with plastic cases do not need an earth wire connected in this way and are said to be 'double insulated', as there is an extra level of insulation through the case. Plastic does not conduct electricity so there is no danger of the case becoming live.